CLAIMS

1. A process for producing an aliphatic polyester, comprising: subjecting a cyclic ester containing water and an alcohol as initiators or/and molecular weight-adjusting agents to ring-opening polymerization based on a total proton concentration and a ratio (carboxylic acid/ester mol ratio) between a mol concentration of carboxyl (carboxylic acid)-source compound including water and a mol concentration of alkoxylcarbonyl (ester)-source compounds, as polymerization-controlling indexes.

2. A production process according to Claim 1, wherein the carboxylic acid/ester mol ratio is in a range of 100/0 - 2/98.

3. A production process according to Claim 1, wherein the carboxylic acid/ester mol ratio is in a range of 99/1 - 5/95.

4. A production process according to Claim 1, any one of Claims 1 - 3, wherein the total proton concentration in the cyclic ester is adjusted within a range of above 0.09 mol% and below 2.0 mol%.

5. A production process according to any one of Claims 1 - 4, wherein the cyclic ester comprises glycolide alone or a mixture of at least 60 wt.% of glycolide and at most 40 wt.% of another cyclic monomer capable of ring-opening copolymerization with glycolide.

6. A production process according to any one of Claims 1 - 5, wherein the cyclic ester after adjusting the total proton concentration therein is

melted under heating in the presence of a catalyst and then the molten cyclic ester is subjected to ring-opening polymerization to precipitate a resultant polymer.

7. A production process according to Claim 6, wherein the cyclic ester after adjusting the total proton concentration therein is melted under heating in the presence of a catalyst, then the molten cyclic ester is transferred to a polymerization apparatus equipped with a plurality of tubes, and the cyclic ester is subjected to ring-opening polymerization in an air-tight state within each tube.

8. A production process according to Claim 7, wherein the plurality of tubes comprise tubes having both ends that can be open and closed.

9. A production process according to Claim 6, wherein the cyclic ester after adjusting the total proton concentration therein is melted under heating in the presence of a catalyst in a melting vessel, then the molten cyclic ester is subjected to ring-opening polymerization in a reaction vessel equipped with a stirrer, and then a resultant polymer is once cooled to be solidified and subjected to solid phase polymerization below the melting point of the polymer.

10. A production process according to any one of Claims 1 - 9, wherein the aliphatic polyester produced by the ring-opening polymerization is compounded with a carboxyl group-capping agent.

11. A production process according to Claim 10, wherein 100 wt. parts

of the aliphatic polyester is compounded with 0.1 - 1.8 wt. parts of the carboxyl group-capping agent.

12. A production process according to Claim 10 or 11, wherein the carboxyl group-capping agent is selected from the group consisting of monocarbodiimides, polycarbodiimides, oxazolines, oxazines and epoxy compounds.

13. A production process according to Claim 10 or 11, wherein the carboxyl group-capping agent is a monocarbodiimide.

14. A production process according to any one of Claims 1 - 13, wherein 100 wt. parts of the aliphatic polyester produced by the ring-opening polymerization is compounded with at most 3 wt. parts of a thermal stabilizer.